

|                               |                        |                     |  |
|-------------------------------|------------------------|---------------------|--|
| <b>Notice of Allowability</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                               | 10/748,912             | DURFEE ET AL.       |  |
|                               | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                               | Li Zheng               | 1638                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the papers filed 12/11/2003.
2. ☒ The allowed claim(s) is/are 29.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                                     |                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                         | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20060721</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                                          |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|                                                                                                                     | 9. <input type="checkbox"/> Other _____.                                                                     |

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 29 (amended) An isolated RRB polypeptide that is selected from the group of polypeptides consisting of

a) SEQ ID NO: 2,

b) [the]a polypeptide encoded by [the]a polynucleotide comprising SEQ ID NO: 1,

c) [the]a polypeptide encoded by [the]a polynucleotide comprising SEQ ID NO: 9,

d) [the]a polypeptide encoded by [the]a polynucleotide selected from the group of polynucleotides that hybridize under highly stringent conditions with SEQ ID NO:

1[polynucleotide],

e) [the]a polypeptide encoded by [the]a polynucleotide selected from the group of polynucleotides that hybridize under highly stringent conditions with SEQ ID NO: 9

[polynucleotide], and

f) [the]a polypeptide encoded by [the]a polynucleotide selected from the group of polynucleotides that hybridize under highly stringent conditions with [the]a polynucleotide[s] that encodesa [for the] SEQ ID NO: 2 [polypeptide], and

wherein said highly stringent hybridization conditions comprise hybridization in 40% formamide, 1 M NaCl concentration, 1% SDS at 37 deg C and followed by at least

Art Unit: 1638

one wash in 0.2 x SSC at 60 deg C for 20 minutes; wherein said RRB polypeptide, when expressed in a transgenic plant, causes attenuation of shoot and root apical meristem function.

The following is an examiner's statement of reasons for allowance:

The specification teaches that a full-length Arabidopsis retinoblastoma-related gene (RRB) gene (AtRRB) cDNA (SEQ ID NO: 1) encoding RRB polypeptide of SEQ ID NO: 2 was cloned into plant expression cassettes under a dexamethasone-inducible promoter. The specification teaches that numerous phenotypic alteration were observed in transgenic lines generated by these constructs, including formation of multiple meristems at the shoot apex, loss of shoot and root apical meristem activity, impaired ability of meristem to form leaf primordia, fasciation of the inflorescence bolt. These results as well as the studies of RRB homologues in maize and mammalian systems confirmed that RRB gene products are negative regulators of cell division. Therefore, RRB polypeptides in the instant claim can be used to modulate plant cell growth.

According to the sequence search, the closest sequence in the prior art is a RRB gene from maize which has 18.0% identity at the nucleotide sequence level and around 33% identity at amino acid level to the claimed RRB gene from Arabidopsis (Xie et al. 1996, Genbank accession X98923). Under the high stringent hybridization condition as defined in the claim, the said RRB gene from maize is not expected to be able to hybridize with any sequence encoding SEQ ID NO: 2.

The claim is deemed free of the prior art due to the failure of the prior art to teach or fairly suggest the polypeptide sequence as claimed in the instant claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Zheng whose telephone number is 571-272-8031. The examiner can normally be reached on Monday through Friday 9:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Art Unit: 1638

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



ASHWIN D. MEHTA, PH.D.  
PRIMARY EXAMINER